

GAO

Report to the Chairman, Subcommittee
on Defense, Committee on
Appropriations, House of
Representatives

June 2001

DEFENSE
ACQUISITIONS

Higher Level DOD
Review of Antiarmor
Mission and Munitions
Is Needed



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**United States General Accounting Office
Washington, DC 20548**

June 8, 2001

The Honorable Jerry Lewis
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman:

The Department of Defense (DOD) issued antiarmor munitions master plans beginning in 1985 and updated the plans annually until 1990. These antiarmor plans focused on the Cold War armored threat and on the weapons that would be needed to prevail in a Central European scenario. In its report on the Fiscal Year 1999 Defense Appropriations Bill,¹ the House Committee on Appropriations expressed concern that the military services were continuing to develop and procure an increasing number of tank-killing weapons at a time when potential adversaries have smaller numbers of armored forces. We previously reported that the number of potential enemy armored targets under current warfighting scenarios is less than 20 percent of the number considered in 1990.² Since 1990, the military services have maintained and improved their inventories of about 40 different types of antiarmor weapons. The military services currently have 13 new antiarmor weapons acquisitions programs with a total cost of about \$14 billion.

The Committee directed the Secretary of Defense to develop an Antiarmor Munitions Master Plan to identify the projected armor threat and the projected quantity of all antiarmor weapons, with the purpose of identifying and eliminating excess antiarmor capability. In response, DOD prepared a new master plan and issued it in August 1999. In 2000, we reviewed the plan and reported³ that it did not identify any excess antiarmor weapons or provide the data and analysis needed to identify such excesses. It also did not provide the data and analysis necessary to support the services' plans to acquire new antiarmor weapons.

¹ House of Representatives, Report 105-591, June 22, 1998.

² *Defense Acquisitions: Reduced Threat Not Reflected in Antiarmor Weapons Acquisitions*, (GAO/NSIAD-99-105, July 22, 1999).

³ *Defense Acquisitions: Antiarmor Munitions Master Plan Does Not Identify Potential Excesses or Support Planned Procurements* (GAO/NSIAD-00-67, May 5, 2000).

Subsequently, the October 1999 Conference Report accompanying the Fiscal Year 2000 Defense Appropriations Bill⁴ noted shortfalls in the plan and directed the Secretary of Defense to provide another antiarmor master plan. The conference report specified that the plan (1) evaluate the joint effectiveness of the existing antiarmor weapons in addressing the threat depicted in the defense planning guidance, (2) describe how planned antiarmor weapons could meet shortfalls in current capability in the defense planning guidance scenarios, and (3) prioritize DOD's antiarmor weapons acquisition programs based on this analysis. In July 2000, DOD submitted its revised antiarmor munitions master plan. At your request, we have reviewed the revised plan to determine if (1) it provides the data and analysis specified in the Fiscal Year 2000 Defense Appropriations conference report, and (2) provides data and analysis needed to support the services' current antiarmor acquisition plans.

Results in Brief

DOD's July 2000 Antiarmor Munitions Master Plan did not provide the data and analysis specified in the Fiscal Year 2000 Defense Appropriations conference report. Specifically, the plan did not include a joint effectiveness analysis, describe how planned antiarmor weapons could meet shortfalls in current capabilities, or provide a prioritization of antiarmor weapon needs and requirements. According to the Office of the Secretary of Defense official in charge of preparing the antiarmor master plan, his Office did not require the services to jointly analyze their antiarmor munitions capabilities because of past difficulties obtaining service-wide agreement on results from joint analyses. Without a joint effectiveness analysis, DOD could not evaluate shortfalls in current capabilities or prioritize antiarmor weapons acquisition programs on a DOD-wide basis.

The plan provided limited data and analysis to support the services' current antiarmor acquisition plans. Instead of a joint effectiveness analysis, the plan relied on two individual service analyses that did not consider the weapons capabilities of the other services. The master plan included the results of separate Army and Air Force weapons effectiveness analyses based on each service's modeling of the current two regional war scenario. The analyses showed that each service achieved favorable warfighting outcomes with or without their planned new antiarmor weapons. With the new weapons, the analysis showed that the favorable outcomes were achieved slightly sooner in some cases and/or with a few

⁴ House of Representatives, Conference Report 106-371, October 8, 1999.

percent less casualties in others. These analyses provided useful data on each service's collective antiarmor capabilities but did not assess the relative warfighting impact of individual new systems in a joint service warfighting environment. Knowledge of the relative warfighting contributions of each new system is critical to determining and comparing cost effectiveness and establishing priorities among the new weapons programs. Such an analysis is needed to assure that the mix and quantities of new weapons being acquired provide the greatest increase in capability for the dollars spent.

In January 2001, following the August 2000 submission of the revised antiarmor master plan, DOD notified us that, in anticipation of the Quadrennial Defense Review, the Army has initiated a number of studies and analyses to more clearly define an economically sound and operationally effective mix of munitions. While we welcome the Army's studies and analyses of its munitions mix, there continues to be a need for a joint service assessment of current and future munitions requirements and priorities. Accordingly, we are recommending that the Secretary of Defense include in the forthcoming Quadrennial Defense Review an examination of joint service antiarmor munitions capabilities, requirements, and priorities.

In commenting on a draft of this report, DOD agreed and stated that they will examine requirements, plans, and priorities for antiarmor weapons as part of the Quadrennial Defense Review. DOD's comments are reprinted in Appendix I.

Background

The armored threat has declined significantly since the end of the Cold War. Nevertheless, the overall size of the U.S. inventory of antiarmor munitions has remained fairly constant since 1990, while U.S. weapons have become more sophisticated, lethal and effective. Currently, DOD has a large inventory of about 40 different types of antiarmor weapons capable of destroying tanks, armored combat vehicles, and artillery. These weapons include various types of ground- and air-fired guided missiles, tank rounds, rockets and mines. DOD is currently funding the acquisition of 13 new antiarmor weapon systems, at a projected cost to completion of almost \$14 billion. Table 1 below shows the funding levels for the planned procurements from fiscal year 2001 to completion.

Table 1: Procurement Cost of Planned Antiarmor Weapon Acquisitions⁵

Weapon	Service	Total Procurement Cost	Procurement Cost Fiscal Year 2001 to Completion
BAT/Army Tactical Missile System	Army	\$4,171	\$3,792
Guided Multiple Launch Rocket System	Army	3,369	3,369
Joint Stand-off Weapon (BLU-108)	Navy/Air Force	1,571	1,559
Javelin	Army/Marine Corps	3,012	1,129
Sense and Destroy Armor	Army	295	15
Wide Area Munition	Army	1,733	1,669
Longbow Hellfire	Army	2107	799
Sensor Fuzed Weapon	Air Force	709	506
Predator	Marine Corps	592	592
Tank Round M829A2/E3	Army	1,613	144
Remote Area Denial Munition	Army	151	143
25-mm Gun Round, Army M919	Army	242	24
Multipurpose Individual Munition	Army	141	141
Total		\$19,706	\$13,882

The Master Plan Does Not Provide Data and Analyses Specified by Congress

The Fiscal Year 2000 Defense Appropriations conference report specified that DOD's antiarmor master plan (1) evaluate the joint effectiveness of the existing antiarmor weapons in addressing the threat depicted in the defense planning guidance, (2) describe how planned antiarmor weapons could meet shortfalls in current capability in the defense planning guidance scenarios, and (3) prioritize DOD's antiarmor weapons acquisition programs based on this analysis. DOD's July 2000 antiarmor master plan does not provide the data and analysis specified in the conference report.

Instead of evaluating the joint effectiveness of existing antiarmor weapons, the plan presented a separate effectiveness analysis of Army and Air Force antiarmor weapons. The analyses showed the separate modeling results of each services' antiarmor weapons in the current two regional war-planning scenario. The plan noted that Navy and the Marine Corps weapons were not included because the Army and Air Force represent tactical air and ground forces that account for 87 percent of planned antiarmor expenditures.

⁵ The Multiple Launch Rocket System, the 25-mm Gun Round and the Multipurpose Individual Munition are used against light armor, but not heavy armor.

The Office of the Secretary of Defense did not require the individual services or anyone else to provide a joint weapons effectiveness analysis. According to the Office of the Secretary of Defense official in charge of the antiarmor master plan, his office did not require such an analysis because of the past difficulties in getting the services to accept the results of a joint analysis. He cited the difficulties his office has had in achieving DOD-wide consensus in other studies, such as the 1997 Deep Attack Weapons Mix Study.⁶

The conferees also requested that the plan describe how planned antiarmor weapons are expected to fill shortfalls in current capabilities in the two defense planning scenarios. The plan did not identify any specific capability shortfalls or describe how individual new weapons would impact current capabilities. The plan compared the capabilities with and without the planned new antiarmor munitions. Because the services were not directed to do a joint analysis, each service focused on the effectiveness of their own weapons. These separate analyses showed that each service clearly achieved their objectives with or without their planned antiarmor procurements, but with the new weapons added, there was some reduction in casualties and time required to achieve the objectives. These reductions reflected the collective impacts of the planned antiarmor weapons procurements. The impacts of individual new weapons were not identified.

Finally, the conferees requested that the plan prioritize the Department's antiarmor weapons acquisition programs. The purpose of such a prioritization would be to identify and eliminate excess capabilities. The plan does not provide a joint service prioritization or individual service prioritization of antiarmor weapons. Instead, the plan describes each type munition and its capabilities. The Office of the Secretary of Defense official in charge of the plan told us that the individual services would not agree on a joint prioritization. Additionally, he stated that release of such analysis, unless all weapon systems are supported, is unlikely since the services would have to agree on the final report. Without the joint effectiveness analysis, the Department of Defense cannot provide either a description of how the planned antiarmor weapons could fill shortfalls across service lines or a prioritization of the antiarmor munitions.

⁶ The results of the study were issued in two parts. Part 1 is the Weapons Mix Analysis and Part 2 is the B-2 Force Tradeoff Analysis.

The Master Plan provides Only Limited Insight into the Capabilities Provided by the New Antiarmor Munitions

The master plan does not provide data and analysis needed to support the services' acquisition plans for individual antiarmor weapons. However, the plan does provide some insight into the collective value of planned antiarmor procurements. At the direction of the Office of the Secretary of Defense, the Army and the Air Force compared the effectiveness of their forces with and without the planned procurements. Our analysis of the results show that for the projected \$14 billion cost of these new procurements, some improvements were realized in an already favorable situation. However, the effectiveness analysis leaves many questions unanswered, particularly about the significance of the improvements realized and whether this amount of improvement warrants the investment.

The Army's analysis compared the outcomes of the two regional conflicts with and without the planned antiarmor procurements. The Army analysts chose three measures to evaluate the effectiveness of these planned procurements: attrition of U.S. forces, attrition of enemy forces, and days of combat to achieve campaign success. The two regional conflict scenarios were modeled against a 2007 threat and were evaluated both with and without the planned new antiarmor procurements. In the first regional scenario, the attrition rate of U.S. forces decreased slightly with the addition of the planned antiarmor procurements. Enemy kills by U.S. forces were increased and the days of conflict were somewhat shorter with the addition of these weapons. In the second regional scenario, the attrition of U.S. forces also decreased with the addition of the planned procurements. Enemy kills by U.S. forces increased slightly with these planned antiarmor procurements, but the days of conflict remained the same. The specific numbers associated with attrition, enemy kills and days of combat are classified.

The Army official in charge of the analysis acknowledged that the planned procurements provide a modest increase in mission effectiveness, but he considered the funding requirements—about \$11 billion for 10 programs—only moderate as well. He noted that larger expenditures would provide greater improvements.

Like the Army analysis, the Air Force analysis shows that the planned antiarmor procurements provide some improvements in the expected battle outcomes. Similarly, the analysis shows that the Air Force is capable of killing its allocated armored targets with or without the planned antiarmor procurements. The Air Force also chose three measures to evaluate the effectiveness of these procurements: attrition of U.S. aircraft, number of aircraft sorties, and days to complete the Air Force campaign.

The two regional conflict scenarios were modeled against a 2007 threat and were evaluated both with and without the planned procurements. Our analysis of the Air Force data shows that the improved weapons slightly decreased attrition of U.S. aircraft and the number of aircraft sorties required to defeat the enemy. Additionally, the improved weapons slightly decreased the days of combat. The specific numbers associated with aircraft attrition, aircraft sorties, and days of combat are classified.

Air Force officials told us that the planned antiarmor procurements do not result in additional enemy losses, since the target set is neutralized with or without these weapons. They stated that the real significance of these improved weapons is that they help the Air Force kill its allocated target set more quickly and thus gain ground for allied forces. We were unable to determine how much ground would be gained because the Air Force did not model the movement of U.S. troops. Instead, the Air Force analysis showed the effects on use and/or attrition of aircraft and weapons as well as on the length of the campaign.

Both the Army and Air Force analyses provided useful data on each service's collective antiarmor capabilities but did not assess the relative warfighting impact of individual new systems in a joint service warfighting environment. Knowledge of the relative warfighting contributions of each new system is critical to determining and comparing cost effectiveness and establishing priorities among the new weapons programs. Such an analysis is needed to assure that the mix and quantities of new weapons being acquired provide the greatest increase in capability for the dollars spent.

In January 2001, following the August 2000 submission of the revised antiarmor master plan, DOD notified us that the Army has initiated, in anticipation of the forthcoming Quadrennial Defense Review,⁷ a number of studies and analyses to more clearly define an economically sound and operationally effective mix of munitions. Further, the Vice Chief of the Army has directed a munitions assessment be performed to determine if the Army has the appropriate munitions mix capable of meeting legacy and objective force⁸ operational requirements. While we welcome the

⁷ The Quadrennial Defense Review is expected to be a comprehensive and fundamental examination of the national defense strategy, including force structure and modernization plans.

⁸ The legacy force is the force as it exists today and the objective force is the force designed to meet future operational needs.

Army's assessments of its munitions mix, there continues to be a need for a joint service assessment of current and future munitions requirements and priorities.

Conclusion

The July 2000 antiarmor master plan does not provide the data and analysis specified in the Fiscal Year 2000 Defense Appropriations conference report. DOD's 1999 antiarmor master plan also did not provide the data and analysis required by the report of the House Committee on Appropriations on the Fiscal Year 1999 Defense Appropriations Bill. The Office of the Secretary of Defense continues to experience difficulties in providing joint service weapons effectiveness analyses and did not require the services to jointly analyze their antiarmor munitions. However, such analyses are critical to determining cost effectiveness and establishing priorities among new antiarmor weapons programs.

Recommendation for Executive Action

Given the difficulties the Office of the Secretary of Defense has had in providing antiarmor weapons data and analyses as directed by congressional reports, we recommend the Secretary include, in his forthcoming Quadrennial Defense Review, an independent cross-service examination of antiarmor weapons requirements, plans, and priorities.

Agency Comments

In commenting on a draft of our report, DOD agreed and stated that the Department will examine its requirements, plans, and priorities for antiarmor weapons as part of the Quadrennial Defense Review

Scope and Methodology

To determine if DOD's July 2000 Antiarmor Master Plan provided the analysis directed by the Committee, we evaluated the information in the plan and discussed the plan with representatives from the Office of the Under Secretary of Defense, Acquisition and Technology, Washington, D.C.; the Office of Program Analysis and Evaluation, Washington, D.C.; and the Office of the Joint Chiefs of Staff, Washington, D.C. We discussed the separate service analyses contained in the report with representatives from the Center for Army Analysis, Ft. Belvoir, Virginia and the Air Force Studies and Analysis Agency.

To determine whether the Master Plan provided the necessary data and analysis to support the planned antiarmor procurements, we reviewed and analyzed the data from the master plan as well as the Army and the Air Force analyses to determine the degree of improvement provided by the planned procurements. We reviewed the fiscal year 2001 budget submission; the Commanders-in-Chief's target allocations, past antiarmor master plans and our prior reports. We reviewed available information on the upcoming Quadrennial defense Review.

We conducted our review from September 2000 to April 2001 in accordance with generally accepted government auditing standards.

We are sending copies of this report to the Honorable Donald H. Rumsfeld, Secretary of Defense; the Honorable Thomas White, Secretary of the Army; the Honorable James G. Roche, Secretary of the Air Force; and to interested congressional committees. We will also make copies available to others upon request.

Please contact me on (202) 512-4841 or Bill Graveline on (256) 650-1400, if you or your staff have any questions concerning this report. Major contributors to this report were Beverly Breen and Tana Davis.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James F. Wiggins".

James F. Wiggins,
Director, Acquisition and Sourcing Management Team

Appendix I: Comments From the Department of Defense



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

17 MAY 2001

Mr. James J. Wiggins
Acquisition and Sourcing Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Wiggins:

This is the Department of Defense (DoD) response to the GAO Draft Report, "DEFENSE ACQUISITIONS: Higher Level Review of Antiarmor Mission and Munitions Is Needed," dated April 20, 2001 (GAO Code 707544/OSD Case 3075). The DoD partially concurs with the recommendation, as discussed in the enclosure.

Thank you for the opportunity to comment on the draft report.

George R. Schneiter
George R. Schneiter
Director
Strategic and Tactical Systems

Enclosure
as stated



GAO DRAFT REPORT DATED APRIL 20, 2001
(GAO CODE 707544) OSD CASE 3075

**"DEFENSE ACQUISITIONS: HIGHER LEVEL DOD
REVIEW OF ANTIARMOR MISSION AND
MUNITIONS IS NEEDED"**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATION**

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense include an independent cross-service examination of antiarmor weapons requirements, plans, and priorities in his forthcoming Quadrennial Defense Review. (p. 8/GAO Draft Report)

DOD RESPONSE: Partially concur. The Department will examine its requirements, plans, and priorities for antiarmor weapons as part of the Quadrennial Defense Review. The nature of this examination has not yet been determined.

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